# DEPARTMENT of ENVIRONMENTAL SERVICES Water Supply & Pollution Control Division - Biology Bureau

#### LAKE TROPHIC DATA

#### MORPHOMETRIC:

| Lake: WHEELWRIGHT POND             | Lake Area (ha):                    | 40.02   |
|------------------------------------|------------------------------------|---------|
| Town: LEE                          | Maximum depth (m):                 | 9.4     |
| County: Strafford                  | Mean depth (m):                    | 3.6     |
| River Basin: Coastal               | Volume (m³):                       | 1449500 |
| Latitude: 43°08'15" N              | Relative depth:                    | 1.3     |
| Longitude: 71°00'29" W             | Shore configuration:               | 1.92    |
| Elevation (ft): 131                | Areal water load (m/yr             | ): 5.25 |
| Shore length (m): 4300             | Flushing rate (yr <sup>-1</sup> ): | 1.40    |
| Watershed area (ha): 440.3         | P retention coeff.:                | 0.65    |
| <pre>% watershed ponded: 0.1</pre> | Lake type:                         | natural |

| BIOLOGICAL:                        | 17 January 1994    | 8 July 1993        |
|------------------------------------|--------------------|--------------------|
| DOM. PHYTOPLANKTON (% TOTAL) #1    | RHIZOSOLENIA 35%   | DINOBRYON 40%      |
| #2                                 | ASTERIONELLA 20%   | ASTERIONELLA 30%   |
| #3                                 | DINOBRYON 20%      |                    |
| PHYTOPLANKTON ABUNDANCE (cells/mL) |                    | 520                |
| CHLOROPHYLL-A (µg/L)               |                    | 6.40               |
| DOM. ZOOPLANKTON (% TOTAL) #1      | KERATELLA 33%      | NAUPLIUS LARVA 35% |
| #2                                 | NAUPLIUS LARVA 21% | KELLICOTTIA 19%    |
| #3                                 |                    |                    |
| ROTIFERS/LITER                     | 37                 | 76                 |
| MICROCRUSTACEA/LITER               | 15                 | 112                |
| ZOOPLANKTON ABUNDANCE (#/L)        | 52                 | 202                |
| VASCULAR PLANT ABUNDANCE           |                    | Common/Abun        |
| SECCHI DISK TRANSPARENCY (m)       |                    | 4.4                |
| BOTTOM DISSOLVED OXYGEN (mg/L)     | 8.8                | 0.4                |
| BACTERIA (E. coli, #/100 m1) #1    |                    | < 10               |
| #2                                 |                    | < 10               |
| #3                                 |                    |                    |

## SUMMER THERMAL STRATIFICATION:

#### stratified

Depth of thermocline (m): 4.0 Hypolimnion volume (m³): 104500 Anoxic volume (m³): 182500

| CHEMICAL: Lake: WHEELWRIGHT POND Town: LEE |                 |       |        |             |                                       |  |
|--|-----------------|-------|--------|-------------|---------------------------------------|--|
|  | 17 January 1994 |       | 8 .    | 8 July 1993 |                                       |  |
| DEPTH (m)                                  | 3.0             | 6.0   | 1.0    | 4.0         | 8.0                                   |  |
| pH (units)                                 | 6.7             | 6.6   | 7.4    | 7.4         | 6.8                                   |  |
| A.N.C. (Alkalinity)                        | 15.0            | 15.8  | 15.7   | 15.9        | 22.5                                  |  |
| NITRATE NITROGEN                           | 0.07            | 0.08  | < 0.02 |             | < 0.02                                |  |
| TOTAL KJELDAHL NITROGEN                    | 0.30            | 0.30  | 0.18   | 0.14        | 0.31                                  |  |
| TOTAL PHOSPHORUS                           | 0.011           | 0.010 | 0.009  | 0.012       | 0.047                                 |  |
| CONDUCTIVITY (µmhos/cm)                    | 114.5           | 117.5 | 110.6  | 110.9       | 122.6                                 |  |
| APPARENT COLOR (cpu)                       |                 |       | 26     | 30          | 80                                    |  |
| MAGNESIUM                                  |                 |       | 1.28   |             |                                       |  |
| CALCIUM                                    |                 |       | 7.1    |             | · · · · · · · · · · · · · · · · · · · |  |
| SODIUM                                     |                 |       | 11.4   |             |                                       |  |
| POTASSIUM                                  |                 |       | 0.96   |             |                                       |  |
| CHLORIDE                                   | 19              | 20    | 19     |             | 18                                    |  |
| SULFATE                                    | 9               | 9     | 6      |             | 5                                     |  |
| TN : TP                                    | 34              | 38    | 20     |             | 7                                     |  |
| CALCITE SATURATION INDEX                   |                 |       | 1.9    |             |                                       |  |

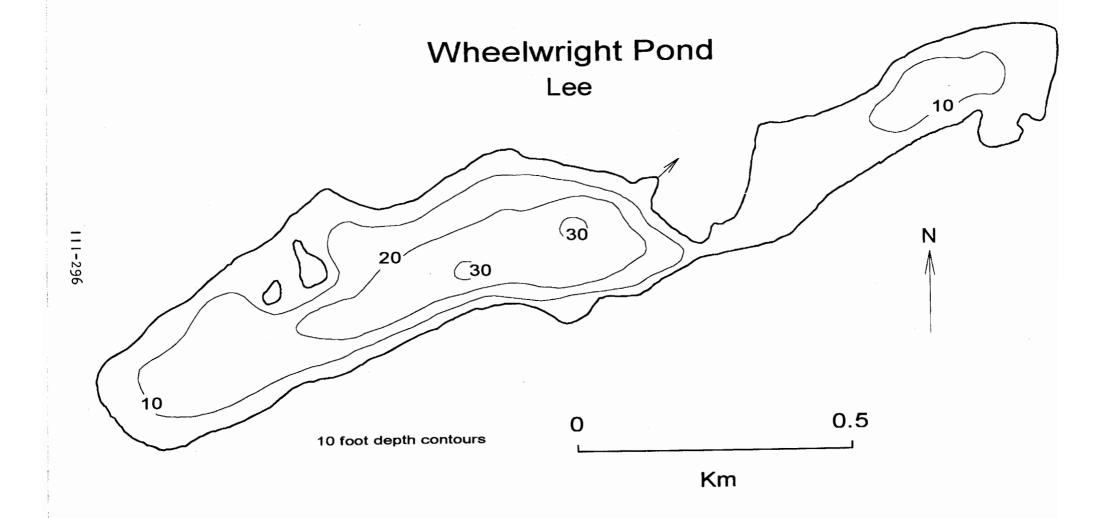
All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1993

| D.O. | S.D. | PLANT | CHL | TOTAL | CLASS |
|------|------|-------|-----|-------|-------|
| 4    | 2    | 4     | 1   | 11    | Meso. |

#### **COMMENTS:**

- 1. This pond was previously surveyed and classified in 1979. It was rated eutrophic at that time. Algae and phosphorus levels were somewhat lower and water clarity higher in 1993, but the changes were probably within natural seasonal and yearly variations. More frequent sampling in a volunteer monitoring program is needed to determine if the indicated trend in water quality improvement is real.
- 2. <u>Chroomonas</u> (30%) and <u>Cryptomonas</u> (15%) were the dominant genera of wholewater phytoplankton.



#### FIELD DATA SHEET

LAKE: WHEELWRIGHT POND

DATE: 07/08/93

TOWN: LEE

WEATHER: PRTLY CLDY; HOT, HUMID & BRZY

| DEPTH (M) | TEMP<br>(°C) | *DISSOLVED<br>OXYGEN | OXYGEN<br>SATURATION |
|-----------|--------------|----------------------|----------------------|
| 0.1       | 28.4         | 8.0                  | 102 %                |
| 1.0       | 27.4         | 7.4                  | 92 %                 |
| 2.0       | 26.5         | 7.0                  | 86 %                 |
| 3.0       | 24.0         | 7.0                  | 83 %                 |
| 4.0       | 19.0         | 6.5                  | 69 %                 |
| 5.0       | 13.9         | 1.3                  | 12 %                 |
| 6.0       | 9.8          | 0.3                  | 3 %                  |
| 7.0       | 7.5          | 0.3                  | 2 %                  |
| 8.0       | 7.0          | 0.4                  | 3 %                  |
| 9.0       | 7.0          | 0.4                  | 3 %                  |
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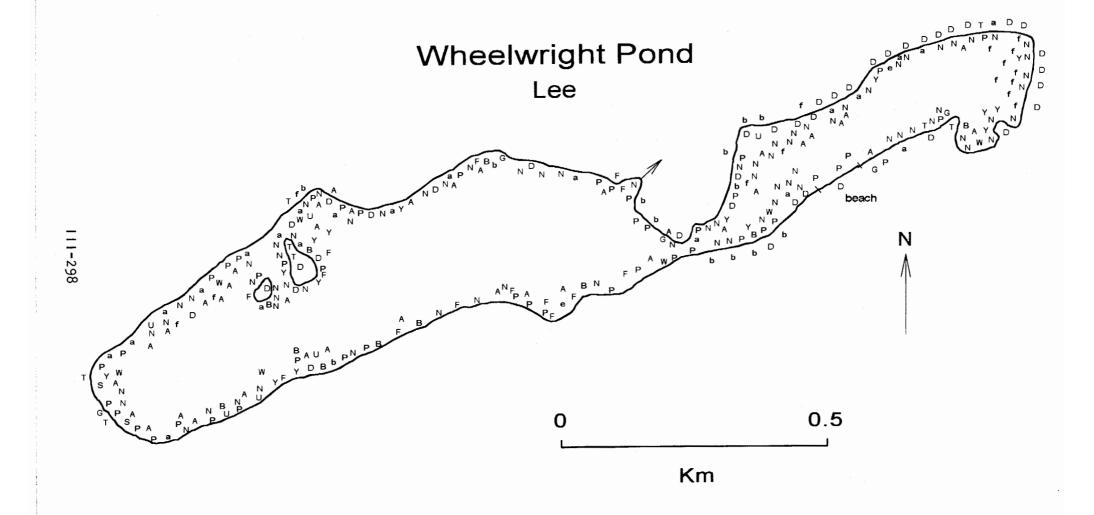
SECCHI DISK (m): 4.4

**COMMENTS:** 

BOTTOM DEPTH (m): 9.4

TIME: 1300

\*Dissolved oxygen values are in mg/L



# AQUATIC PLANT SURVEY

| LAK | E: WHEELWRIGHT POND          | TOWN: LEE               | DATE: 07/08/9 |  |
|-----|------------------------------|-------------------------|---------------|--|
| Кеу | PLANT                        | NAME                    | ABUNDANCE     |  |
|     | GENERIC                      | COMMON                  | ABUNDANCE     |  |
| N   | Nymphaea                     | White water lily        | Common        |  |
| S   | Sparganium                   | Bur reed                | Sparse        |  |
| D   | Decodon verticillatus        | Swamp loosestrife       | Scat/Common   |  |
| P   | Pontederia cordata           | Pickerelweed            | Scattered     |  |
| a   | Peltandra virginica          | Arrow arum              | Sparse        |  |
| f   | Chlorophyceae                | Filamentous green algae | Scattered     |  |
| W   | Potamogeton                  | Pondweed                | Sparse        |  |
| บ   | Utricularia                  | Bladderwort             | Sparse        |  |
| Y   | Nuphar                       | Yellow water lily       | Sparse        |  |
| A   | Sagittaria (sterile rosette) | Stubby wapato           | Common        |  |
| F   | Nymphoides cordatum          | Floating heart          | Scattered     |  |
| В   | Brasenia schreberi           | Water shield            | Sparse        |  |
| е   | Elodea nuttallii             | Waterweed               | Sparse        |  |
| Т   | Typha                        | Cattail                 | Scattered     |  |
| b   | Scirpus                      | Bulrush                 | Sparse        |  |
|     |                              |                         |               |  |
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|     |                              |                         |               |  |
|     |                              |                         |               |  |

## OVERALL ABUNDANCE: Common/Abun

## **GENERAL OBSERVATIONS:**

1. Large floating mats of filamentous green algae were abundant in the eastern end of the pond.